

Claims

We claim:

1. A food irradiation apparatus comprising:
a first x-ray source which generates a first radiation beam;
a rotating support disposed in proximity to the first x-ray source, wherein rotation of the support causes successive portions of food supported by the support to be exposed to the first radiation beam.
2. The apparatus of claim 1 wherein the first x-ray source is disposed axially in relation to the food.
3. The apparatus of claim 1 further including a second x-ray source disposed on a side of the support opposite from the first x-ray source.
4. The apparatus of claim 3 wherein the support rotates about an axis of rotation and the first and second x-ray sources are equidistant from the axis of rotation.
5. The apparatus of claim 3 wherein
the support is disposed between first x-ray source and the food;
the second x-ray source is disposed in proximity to the food such that rotation of the support causes successive portions of the food to be exposed the second radiation beam.
6. The apparatus of claim 5 wherein the distance between the second x-ray source and the support is adjustable.
7. The apparatus of claim 1 wherein the support rotates about an axis of rotation and the distance between the axis of rotation and the first x-ray source is adjustable.
8. The apparatus of claim 1 wherein the first x-ray source is disposed radially in relation to the food.
9. The apparatus of claim 8 wherein the support rotates about an axis of rotation and the distance between the first x-ray source and the axis of rotation is adjustable.

10. The apparatus of claim 8 wherein the support rotates about an axis of rotation and the relative position of the food and the first radiation source in a direction parallel to the axis of rotation is adjustable.

11. The apparatus of claim 1 further including means for determining a dimension of a container supported by the support.

12. An irradiation apparatus comprising:

a rotating support for supporting an object to be irradiated, which support rotates about an axis of rotation; and

a first source of ionizing radiation for irradiating the object, the source being disposed axially in relation to the object, wherein rotation of the support improves a uniformity of the radiation dose received by the object.

13. The apparatus of claim 12 wherein the ionizing radiation is x-radiation and the object is food.

14. The apparatus of claim 12 wherein the radiation source is offset from the axis of rotation.

15. The apparatus of claim 12 further including a second source of ionizing radiation disposed axially in relation to the support, offset from the axis of rotation, and on a side of the support opposite from the first source of ionizing radiation.

16. The apparatus of claim 12 further including means for varying a position of the first radiation source relative to the support in at least one of an axial or radial direction.

17. The apparatus of claim 12 further including a sensor for determining a dimension of the object.

18. A batch irradiation apparatus comprising:

an irradiation chamber;

a door which provides access to the irradiation chamber for selectively inserting and removing an object;

an x-ray source which generates a radiation beam that impinges on a portion of the object;

means for varying the relative positions of the x-ray source and the object so that the radiation beam impinges on successive portions of the object.

19. The apparatus of claim 18 further including

a second x-ray source which generates a second radiation beam that impinges on a portion of the object; and

means for varying the relative positions of the radiation source and the object so that the second x-ray beam impinges on successive portions of the object.

20. The apparatus of claim 18 wherein the means for varying includes a rotating platter.

21. The apparatus of claim 18 wherein the object comprises food and the apparatus includes an operator input device for identifying the type of food.

22. A method of irradiating a quantity of food typically encountered in the home comprising:

inserting the quantity of food into an irradiation chamber through an access port;

turning on an x-ray source;

varying the relative positions of the x-ray source and the food so that successive portions of the food are exposed to the x-rays generated by the x-ray source;

turning off the x-ray source; and

removing the quantity of food from the irradiation chamber through the access port.

23. The method of claim 22 wherein the step of varying includes rotating the food about an axis of rotation.

24. The method of claim 22 wherein the x-ray source is disposed axially in relation to the food.

25. The method of claim 22 wherein the x-ray source includes a first and second x-ray sources and the food is disposed between the sources.

26. The method of claim 23 wherein the x-ray source is disposed radially in relation to the food.

27. The method of claim 22 further including determining a dimension of the food and adjusting the relative positions of the food and the x-ray source based on said dimension.